

WHAT IS CLAIMED IS:

What is claimed is:

1. A livestock cooling system comprising:
  - (a) a fan support member;
  - 5 (b) a fan rotatably coupled to the fan support member, the fan creating an air stream;
  - (c) an oscillation motor operably connected to the fan for rotating the fan through a plurality of rotational positions, wherein the rotation of the fan between any two rotational positions describes an arc length;
  - 10 (d) a position indication device which senses the rotational position of the fan and provides an output signal in response to the rotational position of the fan, the output signal provided to a control means, the control means electrically connected to the oscillation motor;
  - (e) monitoring means connected to the control means, said monitoring means providing real time advice to the control means of a desired arc length; and
  - 15 (f) the control means adapted to cause the oscillation motor to oscillate the fan through the desired arc length.
2. The livestock cooling system of claim 1 further comprising means for injecting water droplets into the air stream of the fan.
3. The livestock cooling system of claim 2 wherein the means for injecting water droplets
  - 20 into the air stream of the fan comprises a mist ring attached to the fan and water is delivered to the mist ring through a high pressure water line.
4. A livestock cooling system comprising:
  - (a) a fan support member;
  - (b) a fan rotatably coupled to the fan support member, the fan creating an air stream,
    - 25 the fan enclosed within a fan housing;
  - (c) an attachment bracket attached to the fan housing;
  - (d) a rotatable shaft, having a first end and a second end, the first end connected to the attachment bracket with fastening means;
  - (e) the second end of the rotatable shaft operably connected to an oscillation motor

for rotating the rotatable shaft through a plurality of rotational positions, wherein the rotation of the rotatable shaft between any two rotational positions describes an arc length;

(d) a position indication device which senses the rotational position of the rotatable shaft and provides an output signal in response to the rotational position of the rotatable shaft, the output signal provided to a control means, the control means electrically connected to the oscillation motor;

(e) monitoring means connected to the control means, said monitoring means providing real time advice to the control means of a desired arc length; and

(f) the control means adapted to cause the oscillation motor to oscillate the rotatable shaft through the desired arc length.

5. The livestock cooling system of claim 4 wherein the fan support member has a top side and a bottom side and the oscillation motor is attached to the top side and the rotatable shaft penetrates through the fan support member and is coupled to the oscillation motor.

6. The livestock cooling system of claim 4 further comprising means for injecting water droplets into the air stream of the fan.

7. The livestock cooling system of claim 6 wherein the means for injecting water droplets into the air stream of the fan comprises a mist ring attached to the fan and water is delivered to the mist ring through a high pressure water line.

8. A livestock cooling system comprising:

(a) a fan support member;

(b) a fan rotatably coupled to the fan support member, the fan creating an air stream, the fan enclosed within a fan housing;

(c) an attachment bracket attached to the fan housing;

(d) a rotatable shaft, having a first end and a second end, the first end connected to the attachment bracket with fastening means and the second end having a first gear disposed thereon;

(e) a drive gear disposed adjacent to and engaging the first gear of the rotatable shaft;

(f) an oscillation motor operably coupled to the drive gear, wherein the oscillation

motor causes the drive gear to rotate the first gear and the rotatable shaft through a plurality of rotational positions, wherein the rotation of the rotatable shaft between any two rotational positions describes an arc length;

(g) a position indication device which senses the rotational position of the rotatable shaft and provides an output signal in response to the rotational position of the rotatable shaft, the output signal provided to a control means, the control means electrically connected to the oscillation motor;

(h) monitoring means connected to the control means, said monitoring means providing real time advice to the control means of a desired arc length; and

(i) the control means adapted to cause the oscillation motor to rotate the drive gear thereby oscillating the rotatable shaft and fan through the desired arc length.

9. The livestock cooling system of claim 8 wherein the fan support member has a top side and a bottom side and the oscillation motor is attached to the top side and the rotatable shaft penetrates the fan support member.

10. The livestock cooling system of claim 8 further comprising means for injecting water droplets into the air stream of the fan.

11. The livestock cooling system of claim 10 wherein the means for injecting water droplets into the air stream of the fan comprises a mist ring attached to the fan and water is delivered to the mist ring through a high pressure water line.

12. A livestock cooling system comprising:

(a) a fan support member;

(b) a fan rotatably coupled to the fan support member, the fan creating an air stream, the fan enclosed within a fan housing;

(c) an attachment bracket attached to the fan housing;

(d) a rotatable shaft, having a first end and a second end, the first end connected to the attachment bracket with fastening means and the second end having a first gear disposed thereon;

(e) a drive gear disposed adjacent to and engaging the first gear of the rotatable shaft;

(f) a gear box coupled to the drive gear;

- (g) an oscillation motor operably coupled to the gear box, wherein the oscillation motor causes the drive gear to rotate the first gear and the rotatable shaft through a plurality of rotational positions, wherein the rotation of the rotatable shaft between any two rotational positions describes an arc length;
- 5 (h) a position indication device which senses the rotational position of the rotatable shaft and provides an output signal in response to the rotational position of the rotatable shaft, the output signal provided to a control means, the control means electrically connected to the oscillation motor;
- (i) monitoring means connected to the control means, said monitoring means  
10 providing real time advice to the control means of a desired arc length; and
- (j) the control means adapted to cause the oscillation motor to rotate the drive gear thereby oscillating the rotatable shaft and fan through the desired arc length.
- 13. The livestock cooling system of claim 12 wherein the first gear and the drive gear are enclosed within a gear housing.
- 15 14. The livestock cooling system of claim 12 wherein the second end of the rotatable shaft is supported by a bearing.
- 15. The livestock cooling system of claim 12 wherein the drive gear is supported by a bearing.
- 16. The livestock cooling system of claim 12 further comprising means for injecting water  
20 droplets into the air stream of the fan.
- 17. The livestock cooling system of claim 16 wherein the means for injecting water droplets into the air stream of the fan comprises a mist ring attached to the fan and water is delivered to the mist ring through a high pressure water line.
- 18. A livestock cooling system comprising:
  - 25 (a) a plurality of fan support members;
  - (b) a plurality of fans, each fan creating an air stream and each fan rotatably coupled to a fan support member;
  - (c) an first oscillation motor operably connected to a first fan for rotating the first fan through a plurality of rotational positions, wherein the rotation of the first fan

between any two rotational positions describes an arc length;

(d) an second oscillation motor operably connected to a second fan for rotating the second fan through a plurality of rotational positions, wherein the rotation of the second fan between any two rotational positions describes an arc length;

5 (e) a first position indication device which senses the rotational position of the first fan and provides an output signal in response to the rotational position of the first fan, the output signal provided to a first control means, the first control means electrically connected to the first oscillation motor;

10 (f) a second position indication device which senses the rotational position of the second fan and provides an output signal in response to the rotational position of the second fan, the output signal provided to a second control means, the second control means electrically connected to the second oscillation motor;

(g) monitoring means connected to the first control means and to the second control means, said monitoring means providing real time advice to the first control means of a first desired arc length for the first fan and said monitoring means providing real time advice to the second control means of a second desired arc length for the second fan; and

15 (f) the first control means adapted to cause the first oscillation motor to oscillate the first fan through the first desired arc length and the second control means adapted to cause the second oscillation motor to oscillate the second fan through the second desired arc length.

19. The livestock cooling system of claim 18 further comprising means for injecting water droplets into the air stream of the first fan and into the air stream of the second fan.

20. The livestock cooling system of claim 19 wherein the means for injecting water droplets into the air stream of the first fan comprises a first mist ring attached to the first fan and water is delivered to the first mist ring through a high pressure water line.

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